

IX. *Third Paper on the Tetriginæ (Orthoptera) in the Oxford University Museum.* By J. L. HANCOCK, M.D., F.E.S.

[Read March 2nd, 1910.]

PLATE XLIX.

THE present studies are mainly founded on a series of forty-seven specimens of *Tetriginæ* (Orthoptera) recently acquired by the Oxford University Museum. I am indebted to Professor E. B. Poulton and Mr. R. Shelford for the privilege of examining them. They have enabled me to add supplemental data to my two former papers published in the Transactions of the Entomological Society of London. These studies are made still more complete by the inclusion of notes founded on material in my private collection.

The section Cladonotæ is represented by ten known genera in Africa; the following diagnostic table based on their distinctive characters may prove useful in separating them. Bolivar* recognised in his "Essai" (1887) species belonging to three genera, namely: *Xerophyllum*, *Trachytettix*, and *Pantelia*. Later Karsch† (1890) added species of *Aemophyllum*, *Trypophyllum*, *Hippodes*, *Hypsæus*, and still later *Piezotettix*,‡ making eight genera recognised up to that time. I have recently added another genus, *Cladoramus*,§ and in the present paper supplemented a new one, *Medinophyllum*, bringing the whole number up to ten now known and differentiated in the table herewith presented. In each genus the type is given. The genus *Hypsæus* and *Piezotettix* also occur in the Oriental region, while the other eight genera are confined to Africa.

* Ann. Soc. Entom. Belg. xxxi, 1887.

† Entomol. Nachricht. 1890.

‡ Berl. Entom. Zeit., xxvi, p. 196.

§ Trans. Entom. Soc. London, p. 217, 1907.

SYNOPTICAL TABLE OF AFRICAN GENERA
OF THE SECTION *CLADONOTÆ.*

- 1. Anterior and middle femora slender, elongate.
- 2. Pronotum compressed, foliaceous.
 - 3. Dorsum of pronotum strongly compressed, highly foliaceous, angulate, pronotum in profile triangulate; first articles of posterior tarsi nearly twice the length of the third. Type *westwoodi*, Bol. HYPSSÆUS, Bol.*
 - 3.3. Dorsum of pronotum subfoliaceous, more or less compressed, tectiform-cristate, in profile above straight or arcuate; first articles of posterior tarsi nearly three times the length of the third. Type *cultratus*, Stål . PIEZOTETTIX, Bol.†
- 2.2. Pronotum not compresso-foliaceous, low obtuse tectiform, apex of posterior process abbreviated, widely rounded; elytra and wings wanting; first articles of posterior tarsi much longer than the third. Type *vicarius*, Karsch . HIPPODES, Karsch.
- 1.1. Anterior and middle femora with both margins more or less foliaceous-dilate, carinae either entire, undulate, lobate, serrate or lobatodentate.
 - 4. Facial frontal scutellum more or less compressed, and either crenulate or spinulose, but not glabrous.
 - 5. Crest of pronotum highly foliaceous above, more or less semicircular and regularly arcuate, the border smoothly longitudinally sulcate at the anterior two-thirds. Type *servillei*, Fairm. XEROPHYLLUM, Fairm.

* The African species are *aequalis*, Karsch, *inaequalis*, Karsch, and *angulatus*, sp. nov.

† The African species are *clypeatus*, Karsch, and *karschi*, Bolivar.

- 5.5. Crest of pronotum low, compresso-cristate, subfoliaceous, scabrous-spinose, produced forward, border above somewhat distinctly sulcate longitudinally and crenulate or erose spinulose posteriorly. Type *crenulatus*, Hanc. CLADORAMUS, Hanc.
6. Pronotum depressed.
7. Humeral angles outwardly produced, ampliate, laminate and serrate; eyes substylate; vertex very wide, and armed with distinct acute spine on each side. Type *bufo*, Costa TRACHYTETTIX, Stål.
- 7.7. Humeral angles wanting, dorsum of pronotum acute tectiform, anteriorly acute; vertex narrow; body apterous. Type *cristulata*, Bol. PANTELIA, Bol.
- 6.6. Pronotum largely compressed and foliaceous, border above sharp, not at all longitudinally sulcate.
- 4.4. Facial frontal costa glabrous.
8. Margins of anterior and middle femora entire or below subundulate.
9. Foliaceous crest of pronotum perforate with foramina, border subsemicircular but little obtuse angulate above about the middle. Type *glabrifrons*, Karsch TRYPOPHYLLUM, Karsch.
- 9.9. Foliaceous crest of pronotum arcuate before the middle, not abruptly cristate, rounded angulate above at about the middle and deflexed backward, apex subobtuse or lengthily extended backward beyond the hind femoral apices, acuminate; inferior external carinae of posterior

femora entire. Type *xerophylloides*, Bol. . . . MEDINOPHYLLUM, gen. [nov.*]

8.8. Margins of anterior and middle femora below tri- or quadrilobate ; foliaceous crest abruptly highly elevated cristate forward, superior margin above undulate or sinuate ; inferior external carinae of posterior femora incrassate bearing lobes.

Type *undulatum*, Karsch. . . . ACMOPHYLLUM, Karsch.

Genus HYPSSÆUS, Bol.

Ann. Soc. Entom. Belgique, xxxi, p. 200, 1887.

H. angulatus, sp. nov.

Face in profile subrounded, little sinuate below the frontal scutellum ; scutellum elongate, margins entire, above curvate divergent, but subparallel below toward the median ocellus ; antennae inserted between the lower fourth of the eyes. Pronotum triangulate, strongly compresso-foliaceous, highly elevated and angulate above the middle, the summit of the angle rounded, anteriorly extended beyond the head, the inferior margin of process convex, the frontal apex obtuse-rounded ; margin above at the anterior half of crest arcuate toward the process in front, but flattened toward the elevated summit ; behind the middle deflexed backward and toward the hind apex very slightly undate-sinuate ; anterior and posterior halves of the upper margin subequal in length, the posterior process scarcely extended backward to the knees of the hind femora ; lateral lobes of pronotum posteriorly unisinuate, posterior angles obliquely excised behind. Elytra and wings wanting. Anterior femora elongate, little compressed, superior carinae entire, below slightly bilobate ; middle femora slender, margins entire ; posterior femora above ampliate, the superior carina strongly quadrilobate, the apical or fourth lobe triangular and acute ; the superior external carina incrassate posteriorly ; ventral carina substraight at the apical three-fourths, and here bearing five indistinct small tubercles or lobuli ; first articles of the posterior tarsi much longer than the third, the first and second pulvilli nearly equal, the third much longer than the rest

* The genus *Medinophyllum* also includes the species *Acmophyllum conradti*, Bol.

in length. Colour fusco-rufescent, the crest of pronotum wholly opaque, margin above marked with fuscous.

Length of pronotum, ♂ 12.5 mm.; height at the middle, 9 mm.; posterior femora length, 7.6 mm.

Locality: Bitje Ja River, S. Cameroons (Rosenberg).

One example in the author's collection. This species resembles *H. aequalis*, Karsch, but is distinguished by the smaller stature and by the more distinct right angle summit above.

Genus XEROPHYLLUM, Fairm.

Ann. Soc. Entom. France, p. 246, 1846.

The following table is a revision of the species of the African genus *Xerophyllum*, and includes three new species.

TABLE OF XEROPHYLLUM SPECIES.

1. Wings entirely explicate and extended more or less beyond the pronotal apex; foliaceous crest curvate, anteriorly substraight deflexed backward, posterior process lengthily extended backward beyond the apices of hind femora; length of pronotum, ♂ 14 mm.; ♀ 15 mm. . . *extensum*, sp. nov.
- 1.1. Wings not entirely explicate, rarely reaching to and not beyond the pronotal apex; foliaceous crest semicircular or subreniform.
2. Anterior process of pronotum obtuse angulate, the crest regularly arcuate; anterior femora above nearly entire or somewhat sinuate, below undulate; lateral carinae of frontal scutellum compressed crenulate; wings extended nearly to the pronotal apex; length 19 mm. . . . *servillei*, Fairm.
- 2.2. Anterior process of pronotum subacute, crest largely elevated behind the middle; anterior femora above serrate, below

lobato-dentate ; wings covered
by the sides of pronotum ; length
of pronotum, ♂ 12 mm. *simile*, Bol.

3. Pronotum behind at the apex
incised, crest highly arched-
cycloidal ; inferior margin of pos-
terior femora strongly denticulate,
inferior external carina bearing
denticles ; length of pronotum,
12 mm. *platycorys*, Westw.

3.3. Pronotal apex obtuse-rounded,
margin barely undate or sub-
sinuate ; crest subreniform ;
frontal scutellum cristate pro-
duced, entire or very slightly
serrulate : vertex carina bearing
a median projecting denticle ;
posterior femoral carinae ven-
trally strongly quinquelobate,
inferior external carina trilobate ;
length of pronotum, ♂ 10.5 mm. ;
♀ 11.5 mm. *crisifrons*, sp. nov.

4. Dorsal crest very highly compresso-
elevated, semicircular, margin
behind near the apex crenulate ; *galeatum*, Karsch,
length of pronotum, ♂ 13 mm. *fuscum*, Bol. (larva) ?

4.4. Dorsal crest very highly com-
presso-elevated, semicircular,
but very little subangulate-
rounded above the middle ;
lateral carinae of frontal scu-
tellum minutely spinulose ;
length of pronotum, ♂ 11.5
mm. ; ♀ 11.8 mm. *neavei*, sp. nov.

X. extensum, sp. nov. (Plate XLIX, fig. 1.)

(See preceding synoptical table.) Lateral carinae of frontal scutellum minutely spinulose or denticulate. Pronotum highly elevated and strongly compresso-foliaceous, crest very thinly translucent bearing radiating veins ; superior margin forward of the middle of dorsum regularly smoothly curvate, highly and roundly elevated subangulate behind the middle and extended deflexed backward substraight to the acute apex ; behind more than a third of

the posterior margin above minutely crenulate barely undate; the posterior process lengthily extended backward beyond the hind femora, a distance nearly equal to their length, the lateral margins below convex, anterior process in front curvate, apex bidentate, subobtuse, the inferior margin strongly oblique, substraight; lateral lobes posteriorly bisinuate. Elytra oblong; wings fully explicate, freely exposed at the sides and ends, and more or less distinctly extended beyond the pronotal apex, and beyond the hind femora a distance equal to their length. Femora subscabrous granulate, anterior femora foliaceous-dilate, superior carina serrulate, terminating in a small denticle, ventral margin serrulate-sublobulate; middle femora above serrulate-sublobate, inferior carina ampliate backwards toward the apex, serrate and incised bilobate; posterior femora externally scabrous, superior carina compresso-ampliate and serrate backwards terminating acutely, superior surface before the knees bearing two distinct fuscous spines, the inner one erect; external femoral carina thin, inconspicuous and minutely serrulate, the inferior external armed with two obscure minute denticles; ventral carina crenulate and somewhat distinctly quinquelobate. Colour greyish or greyish rufescent, the crest sometimes cinerous, subhyaline, and rarely marked with fuscous along the margin.

Length of pronotum, ♂ 14 mm.; posterior femora, 5.3 mm. ♀ pronotum, 15.5 mm.; posterior femora, 6 mm.

Seven examples; three males and four females from N.E. Rhodesia in the Oxford University Museum, collected by S. A. Neave in the following localities:—Two from Lofu River, 3500 ft., No. 2129, August 13, 1908; one from Chisinga Plateau, Kalangwini district, 4500 ft., September 25, 1908; three from Upper Kalangwisi Valley, 4200 ft., No. 2125, September 3, 1908, and one from Alala Plateau, Ndola district, 4000 ft., October 12, 1905.

This species may be a dimorphic long-wing form of *X. neavei*.

X. crisiifrons, sp. nov.

Frontal scutellum cristate produced, the margins between the antennae subentire or barely minutely serrulate, above slightly denticulate, median carina of vertex slightly crenulate, and bearing a distinct denticle projecting between the middle of the eyes. Pronotum strongly and thinly compressed foliaceous, bearing radiating veins; superior margin subreniform, forward before the middle flattened

arcuate, in front strongly roundly produced, behind the middle more largely elevated curvate, backward the margin at the apical fourth indistinctly quadri- or quinque-undate or subsinuate at the obtuse apex; superior margin rather widely longitudinally sulcate; anterior process subobtuse, the apex strongly bidentate, inferior lateral margins viewed from above strongly serrate, viewed from the side strongly oblique, substraight or little curvate produced over the head; pronotum posteriorly extended distinctly beyond the femoral apices; lateral lobes posteriorly bisinuate, the upper sinus very shallow, posterior angles strongly oblique, subobtuse and obliquely excised behind. Elytra oblong; wings not visible. Anterior femora compressed-foliaceous, superior carina serrulate-undate, below subquadri-lobate, middle femoral carinae above compressed, serrulate-undulate, below strongly quadrilobate, or the two middle lobes fused in one, then trilobate; posterior femora rugose, superior carina crenulate (in the female bearing four tubercles), and the apex triangularly elevated; superior area before the knee bispinose, external pagina subtuberculate, as viewed from above the inferior external carina strongly trilobate, the first very small, ventral carina strongly quinque-lobate and finely serrate between the lobes. Colour rufescent, infusate on the pronotum, the rest of body lighter.

Length of pronotum, ♀ 11.5 mm.; posterior femora, 5 mm.
♂ pronotum, 10.5 mm.; posterior femora, 4.3 mm.

Two examples from Abuthsi, River Niger, Africa (Rosenberg), in the author's collection.

X. neavei, sp. nov. (Plate XLIX, fig. 2.)

(See preceding table.) Lateral carinae of frontal scutellum minutely spinulose or denticulate. Pronotum subscabrous-granulate, highly elevated, very thinly compresso-foliaceous, sides bearing radiating veins, conspicuous when held against the light, superior margin of crest nearly semicircular, but very little subangulate-rounded above the middle, the anterior half regularly smoothly curvate, the edge above somewhat widely longitudinally sulcate, little planate, posterior half curvate, but the margin at the apical third part minutely crenulate, and here toward the apex slightly undate and little sinuate above the apex (more distinct in the female), anterior process subobtuse, the front border arcuate and the apex bidentate, and just above in front little denticulate; inferior lateral borders of anterior process strongly oblique, produced beyond the head, margin substraight, but viewed from above laterally serrate; posterior process extended backward little beyond the

apices of the hind femora; lateral lobes posteriorly bisinuate. Elytra oblong; wings very short, nearly completely covered by the sides of the pronotum, not reaching to apex of abdomen. Femora scabrous-granulate; anterior femora foliaceous dilate, dorsal margin serrulate, terminating in minute denticle; ventral margin serrulate, sublobate; middle femora above serrulate, subundulate, sinuate at the apex, below distinctly amplicate backward and serrate-lobate, being deeply bi-incised near the apex and distinctly lobate; posterior femora rugose-scabrous on the external pagina; superior margin strongly serrate, terminating in a denticle; superior areas before the knee bearing two fuscous acute denticles, the outer one less erect; ventral margin crenate quinque-lobate; the inferior external carina inconspicuous and minutely serrulate, often bearing minute tubercle near the middle. Colour greyish-fuscous or ferruginous, the superior margin of crest marked with fuscous.

Length of pronotum, ♂ 11.5 mm.; posterior femora, 5-5.5 mm. ♀ 11.8 mm.; posterior femora, 6 mm.

Four examples from N.E. Rhodesia in the Oxford University Museum, collected by S. A. Neave at the following points:—Three from Upper Kalungwisi Valley, 4200 ft., No. 2140, September 3, 1908; one from Chisinga Plateau, Kalungwisi district, 4500 ft., No. 2139, September 25, 1908.

One specimen has a singular abnormality in presenting a deep angulate incision excavated from the front part of the pronotal crest near the frontal apex. This individual seemingly was born with this peculiarity, and is possibly a mutation.

I take pleasure in dedicating this interesting species to S. A. Neave, who contributed the specimens to the Oxford University Museum.

Genus CLADORAMUS, Hancock.

Trans. Entom. Soc. London, p. 217, 1907.

As shown in the preceding synoptical table, this genus occupies a position midway between *Xerophyllum*, Fairm., and *Trachytettix*, Stål.

C. crenulatus, Hanc.

Six examples are represented in the present material collected and presented to the Oxford University Museum by S. A. Neave. They were taken at the following

points in N.E. Rhodesia:—Five from Chisinga Plateau, Kalungwisi, 4500 ft., No. 2149–2153, September 17, 1908, and one from Mporokoso, 4500 ft., No. 2154, September 2, 1908. The type female example from which the original description was drawn came from East Loangwa Rhodesia.

Genus *ACMOPHYLLUM*, Karsch.

Entom. Nachrichten, p. 21, 1890.

In the preceding synoptical table of the genera of African *Cladonotæ* I have classed both *Acmophyllum xerophylloides* and *A. conradti*, described by Bolivar, under the new genus *Medinophyllum*. The following table therefore is confined to the three remaining species enumerated below:—

TABLE OF SPECIES.

- 1. Inferior external carina of posterior femora quadrilobate; anterior margin of pronotal crest oblique, above before the middle summit flattened-undulate; length of pronotum, ♂ 16.3 mm. *undulatum*, Karsch.
- 1.1. Inferior external carina of posterior femora distinctly unilobate at the middle.
- 2. Anterior margin of pronotum vertical, above before the middle summit sinuate; length of pronotum, ♀ 17 mm. *excavatum*, sp. nov.
- 2.2. Anterior half of pronotal margin above before the middle regularly rounded; length of pronotum, ♂ 18 mm. *nigro-punctatum*, Bol. ;

A. excavatum, sp. nov.

Facial costa barely scutelliform, the lateral carinae entire, acute angulate above gradually divergent to the median ocellus, compresso-elevated between the antennae yet in profile flattened; face distinctly sinuate below at the ocellus; antennae inserted far below the eyes, equal in distance to one-half their height; vertex on each side next to the eyes bearing a small elevated tubercle. Pronotum

strongly compresso-foliaceous almost wholly cristate, more highly elevated above at the middle summit; the superior margin of anterior half abruptly elevated, in front vertical undate and above strongly unisinate-subundate; the posterior half backward gently deflexed undulate and near the apex concave, posteriorly lengthily extended beyond the apices of the hind femora and acute; superior margin of crest marked with fuscous, viewed from above sinuous; anterior process below arcuate produced above the head, the apex little straight excised; lateral lobes of pronotum posteriorly bisinuate, posterior angles elongate, obliquely extended outward and rounded. Elytra oblong subacuminate; wings fully explicate, extended backwards to the pronotal apex. Anterior femora compresso-foliaceous, superior margin subtrilobate, below quadrilobate, or the two middle lobes fused in one; middle femoral carinae above slightly undulate, below compresso-ampliate, sinuate, and bearing a small apical lobe; posterior femoral carinae above subentire, minutely serrulate, marked by small fuscous dots, and near the apices terminating in acute denticle; inferior carina of external pagina strongly compressed-incrassate, viewed from above little undulate and bearing a strong projecting median lobe; ventral margin entire or indistinctly undulate and marked with fuscous; first articles of posterior tarsi equal in length to the third, the first and second pulvilli minute, the third distinctly longer. Colour, greyish-rufescent, sparingly speckled with fuscous, the tibiae infuscated toward the apices, joints and apices of tarsi black.

Length of pronotum, ♀ 17.2 mm.; height at middle, 7 mm.; posterior femora length, 7 mm.

Locality: Bitje Ja River, S. Cameroons (Rosenberg), in the author's collection.

Genus RHOPALOTETIX, nov.

Body smoothly granulose; eyes globose; face strongly retreating; vertex strongly obliquely produced in an elongate cephalic process, cuspidate at the apex, viewed from above longitudinally sulcate, sides entire; vertex, between the eyes forward broadly fossulate, middle not carinate. Antennae long, longer than the head, inserted below the eyes; frontal costa narrowly sulcate, superior paired ocelli placed between the lower third of the eyes; median ocellus placed far below the eyes. Pronotum anteriorly truncate, posteriorly lengthily acuminate-subulate, extended beyond the femoral apices; dorsum narrow between the shoulders, deplanate; median carina low, scarcely elevated; anterior carinae short parallel; humeral

angles nearly straight; posterior angles of the lateral lobes turned down obtuse, yet obliquely excised. Elytra small and widened posteriorly, apex widely rounded; wings perfectly explicate. Anterior femora strongly elongate, superior carinae basally compressed, acute and minutely serrulate; middle femoral carinae above compressed, terminating in an apical denticle; posterior femoral carinae above terminating in a denticle, below longitudinally curvate; genicular denticle produced; posterior tibiae narrow, the canthi minutely serrulate and bearing many small feeble denticles; first and third articles of posterior tarsi equal in length, the third joint distinctly clavate.

This genus resembles *Rhynchotettix*, Hancock,* but differs in the cuspidate apex of the produced cephalic process, in the absence of a median carina on vertex, in the prominent globose eyes, in the presence of elytra and wings, in the absence of a spine arming the posterior angles of the lateral lobes of pronotum, in the equal length of the first and third tarsal articles, and in the distinctly clavate form of the third joint of the posterior tarsi.

R. clavipes, sp. nov.

Body smooth granulate; eyes prominent and strongly globose; face strongly oblique; vertex strongly obliquely produced in an elongate cephalic process, in profile extended beyond the eyes more than the greatest length of one of them, in width equal to nearly two-thirds the height of one of the eyes, and terminating in a deflexed acute spine; process ventrally compressed, the middle forming the facial median carina above, basally sinuate between the lower part of the eyes; the process extension viewed from above narrower than the vertex backward, longitudinally sulcate, sides parallel entire but cuspidate at the apex; vertex between the eyes little narrowed forward, broadly transversely fossulate, nearly equal in width to one of the eyes, middle not carinate; superior paired ocelli placed between the lower third of the eyes; median ocellus situated far below the eyes, the distance from the median ocellus to the eyes much greater than the distance between the eyes; frontal costa narrowly sulcate, forked between the paired ocelli above, downwards compressed scarcely elevated; antennae long and slender, longer than the head, consisting of fourteen articles, the first basal articles crassate, second smaller globose, the next four

* Trans. Entom. Soc. London, p. 228, 1907.

short and indistinct, but the rest from the seventh to the terminal apical article strongly elongate. Pronotum anteriorly truncate, posteriorly lengthily acuminate-subulate extended beyond the hind femoral apices; dorsum deplanate, between the shoulders scarcely widened; humeral angles substraight, transversely subrounded; median carina percurrent but low barely elevated; anterior prozonal carinae short and parallel; lateral lobes of pronotum somewhat small, margin anteriorly arcuate; posterior angles turned down and obliquely excised. Elytra small, widened backward, the apices rounded, the central external two-thirds marked with black; wings perfectly explicate, extended barely beyond the pronotal apex. Anterior femora strongly elongate, superior margins little compressed basally and serrulate, below entire; middle femora elongate, superior carinae compressed minutely serrulate, and terminating in an apical spine, ventral carinae little compressed subentire or barely undulate; posterior femora slender, superior carinae forward arcuate, posteriorly terminating in distinct antegenicular denticle, very minutely serrulate, genicular apical lobe distinctly produced; ventral carinae slightly curvate, carinae of external paginae distinct and between them bearing oblique granulate rugae; posterior tibiae narrow, the canthi minutely serrulate and bearing many very small denticles; first and third articles of posterior tarsi equal in length; the third tarsal article distinctly clavate, the three pulvilli of the first tarsal article equal in length and obtuse below. Colour dark cinero-griseous, the hind tibiae infusate, but light annulate behind the knees.

Entire length of body, ♀, 21.2 mm.; pronotum, 13.8 mm.; posterior femora, 6 mm.; hind tibiae, 5 mm.; antennae, 6 mm. One example in the author's collection.

Locality: Padang Pandjang, West Sumatra (Rolle).

This species is remarkable in the form of the long antennae, produced vertex, globose eyes, and clavate form of the third article of the posterior tarsi. Type in the author's collection.

Genus THORADONTA, Hancock.

Trans. Entom. Soc. London, p. 407, 1908.

This genus is represented by small forms with subquadrate vertex; elongate antennae inserted below the eyes; the pronotum anteriorly truncate, posteriorly abbreviated acuminate; with the median carina of pronotum sinuate or bicristate; dorsum widened between the obtuse

carinate humeral angles, and above bearing a supernumerary carinula on each side; the lateral lobes outwardly laminate, the posterior angle dentate or spined; elytra ovate and wings present; anterior and middle femora elongate, margins slightly compressed, above subentire, below undulate; the first and third articles of the posterior tarsi subequal or the first a little longer than the third, the first two pulvilli often acute subspiculate.

T. dentata, Hancock.

One female in the Oxford University, No. 269, from Selangor, Kuala Lumpur, Malay Peninsula, collected and presented by H. C. Pratt. The type in the Oxford University Museum is from Penang or Prince of Wales Island.

Genus *DASYLEUROTETRIX*, Rehn.

Proc. Acad. Nat. Sci. Philadelphia, p. 68, 1904.

D. currici, Rehn. (Plate XLIX, fig. 3.)

Ten examples, Nos. 2142-2148, from N.E. Rhodesia, in Oxford University Museum, collected and presented by S. A. Neave; nine from the Upper Kalungwisi Valley, 4200 ft., September 11, 1908; one from Chinsali, 4300 ft., April 11, 1908.

Genus *TETRIX*, Latreille.

Hist. Nat. Crust. Ins., vol. iii, p. 284, 1802.

T. bipunctata, Linné.

Two examples (varieties) in Oxford University Museum from Persian Gulf, (?) Bussorah.

T. subulata, Linné.

Two long-wing and one short-wing (varieties) in the Oxford University Museum from Persian Gulf, (?) Bussorah.

Genus *EUPARATETRIX*, Hancock.

Spolia Zeylanica, vol. ii, p. 145, 1904.

E. interruptus, Brunner.

One ♀ example, No. 1106, from Malay Peninsula, S.W. Johore, Kukub, collected and presented by H. N.

Ridley to the Oxford University Museum. This specimen is nearly wholly black, the first and second legs banded with fuscous, while the black hind tibiae present a white annulation behind the knees.

E. pulvillus, sp. nov. (Plate XLIX, figs. 4 and 4a.)

A slender species allied to *Paratettix histricus*, Bol. Head exerted; vertex equal in width to one of the eyes, truncate, middle carinate, frontal costal in profile above little subangulate produced beyond the eyes, and between the antennae more subarcuate produced, rather narrowly sulcate. Pronotum punctate-granulate, constricted before the shoulders, and between the shoulders only slightly widened; anterior pronotal carinae short and parallel; median carina percurrent, compressed, slightly undulate forward and behind the shoulders, posterior process extended far beyond the femoral apices; posterior angles of the lateral lobes subacute. Elytra subovate and externally strongly reticulate; wings caudate extending beyond the pronotal apex two millimeters. Anterior and middle femora elongate, nearly entire, but the inferior carinae of middle femora scarcely undulate; posterior femora slender, superior carina serrulate terminating in a denticle before the knee, the external area at the middle plainly bituberculate; posterior tibiae ventrally infusate and the apical fourth fuscous; first articles of posterior tarsi equal in length to the third, the first two basal pulvilli acute-spiculate, the third nearly as long as the first and second together, and flat below. Body below sparingly hirsute. Colour of body testaceous marked with black on the disk of the pronotum.

Entire length of body, ♀ 15 mm.; pronotum, 12 mm.; posterior femora, 5.5 mm.

One example from Malay Peninsula, Selangor, Riverside Estate, collected and presented to the Oxford University Museum by H. C. Pratt.

E. angustivertex, Bol.

Three examples from N.E. Rhodesia in the Oxford University Museum—two from Upper Kalungwisi Valley, 4200 ft., Nos. 2159 and 2163, September 11, 1908; one from Lofu River, 3500 ft., No. 2155, August 17, 1908, collected and presented by S. A. Neave.

Genus PARATETTIX, Bolivar.

Ann. Soc. Entom. Belgique, xxxi, p. 270, 1887.

P. pictus, sp. nov. (Plate XLIX, figs. 5 and 5a.)

Body small, coloured fuscous and light variegated. Head not exerted, dorsum above little rugose-granulate; vertex little narrower than one of the eyes, little narrowed toward the front, viewed from above not produced beyond the eyes; frontal costa in profile slightly projecting beyond the eyes above, but between the antennae subarcuate; between the eyes indistinctly sinuate, the lateral rami moderately separated; antennae inserted between the lower angles of the eyes; eyes in profile subconoidal, the occiput covered. Pronotum anteriorly truncate, between the shoulders convex, little widened, posterior process subulate, extended beyond the femoral apices behind; anterior prozonal carinae very short, quite widely separated and parallel; median carina marked with fuscous, little compressed percurrent, subgibbucose near the front margin; posterior angles of the lateral lobes rather obliquely excised. Elytra ovate; wings caudate and black. Femora elongate, little compressed, margins entire and sparingly pilose; middle femora in male narrowed toward the apices; posterior femora elongate, margins minutely serrulate, antegenicular and genicular denticles prominent; posterior tibiae black with white annulation behind the knees and marked with white at the distal third; second and third posterior tarsal pulvilli subequal in length.

Entire length of body, ♂ 9.6 mm; pronotum, 8 mm.; posterior femora, 4 mm.

One example, No. 2158, from N.E. Rhodesia, Mporokosa, 4500 ft., August 31, 1908, collected and presented to Oxford University Museum by S. A. Neave. This species is nearly allied to *wilverthi*, Bolivar, differing in being more rugose, smaller in stature, in not being depressed behind the shoulders on the dorsum, and in the less depressed median carina behind the anterior border. It also differs in the equal length of the second and third posterior tarsal articles.

Genus PROTOTETTIX, Bolivar.

Ann. Soc. Entom. Belgique, xxxi, p. 255, 1887.

As I interpret the African genus *Prototettix*, Bol., there are three representatives, namely, *impressus*, Bol., *afri-*

canus, Hanc., and *bucculentus*, sp. nov., described below. The species *fossulatus*, Bol., and *lobulatus*, Stål, inhabiting South America, and formerly classed by Bolivar in this genus, are quite different from the African forms. As a result of a revised study of these insects the two latter species were recently transferred to my genus *Rytinactis*, as noted in the Transactions of the Entomological Society of London, p. 416, 1908.

P. bucculentus, sp. nov. (Plate XLIX., figs. 6 and 6a.)

Colour shining, brownish fuscous, obscurely light variegated, sparingly sprinkled with various large tubercles. Body incrassate, head not at all exerted, occiput covered; vertex transverse, rugose, twice the width of one of the eyes, frontal carinulae wanting; in profile the distinct median crassate carina of vertex fused with the facial costa above, forming a rounded contour elevated above the eyes and strongly arcuately produced beyond them; in front view widely sulcate, little divergent downward toward the median ocellus; eyes conoidal in profile, the face below on each side tumid, antennae inserted barely between the lower angles of the eyes. Pronotum above rugose sprinkled with large tubercles, anteriorly convex; dorsum very obtuse tectiform, barely impressed behind the shoulders; anterior prozonal carinae low, little convergent backward; humeral angles obtuse and indistinctly lineate carinate but the lateral carinae behind on the process more distinct, entire; median carina acute, subpercurrent, arcuate anteriorly, depressed at the middle and subconvex backward toward the apex, posterior process abbreviated, subacute, not reaching to the knees of the hind femora; lateral lobes rugose, inferior margin nearly straight, little sinuate, slightly reflexed outwards, posterior angles obliquely excised; posterior superior sinus very small, nearly obsolete. Elytra small, narrow, subacuminate towards the apices; wings not visible or wanting. Anterior femora elongate, above entire, below indistinctly unilobulate; middle femora bicarinate, compressed, marginal carinae above and below subtrilobulate; posterior femora elongate, the outer area incrassate, marginal carinae above and below curvate, adorned with fuscous and minute flavous markings, minutely serrulate-granulate; antegenicular denticle acute, genicular denticle wanting; posterior tibiae incrassate, amplified towards the apices, external canthi bearing many strong spines, and about seven spines arm the inner canthi; tibiae black with small light annulation behind the knees; the first hind tarsal articles incrassate, longer than the

third, all three pulvilli nearly equal in length and flat below, not at all acute.

Entire length of the body, ♀ 11·8 mm. ; pronotum, 9 mm. ; posterior femora, 6·5 mm.

One example, No. 2162, from N.E. Rhodesia, Upper Kalungwisi, 4200 ft., September 7, 1908; collected and presented to Oxford University Museum by S. A. Neave.

Genus *COPTOTETTIX*, Bolivar.

Ann. Soc. Entom. Belgique, p. 289, 1887.

Owing to the incomplete descriptions of some of the species of African *Coptotettix*, the separation of the species is made difficult. I have attempted to give a revised table of the African species in the order in which they seem to be more readily recognized.

TABLE OF SPECIES.

1. Antero-dorsal margin of pronotum angulate
2. Body moderately crassate.
3. Antennae short, inserted between and towards the middle of the eyes, lateral carinae behind the anterior margin of dorsum obsolete; vertex obtuse-angulate, rounded produced before the eyes; third pulvilli of posterior tarsi longer than the second *angulatus*, Bol.
- 3.3. Antennae elongate, inserted between the lower part of the eyes; lateral carinae near the anterior margin of dorsum present, parallel; vertex rounded before the eyes; third and second pulvilli of posterior tarsi subequal in length . . . *minutus*, Bol.
- 2.2. Body narrower, rugose, legs shorter, posterior process extended far beyond the apices of posterior femora; wings barely passing pronotal apex; dorsum anteriorly covered with elongate rugae and bi-

- rugate between the shoulders ;
 elytra oblong, narrow, apices
 narrowly rounded *discolor*, Bol.
- 1.1. Antero-dorsal margin of pronotum
 very slightly convex or trun-
 cate.
4. Antero-dorsal margin slightly con-
 vex ; elytra rather wide, elong-
 ate, apices acutely angulate,
 externally lightly punctate im-
 pressed ; first articles of the
 posterior tarsi little longer than
 the third, the third pulvilli
 longer than the first ; pulvilli
 flattened below not at all
 spiculate *convexus*, sp. nov.
- 4.4. Antero-dorsal margin truncate.
5. Posterior pronotal process not
 abbreviated ; wings extended to
 pronotal apex or caudate.
6. Median carina of pronotum per-
 current, scarcely elevated, un-
 dulate, gibbucose anteriorly
 before the shoulders ; dorsum
 sparingly rugulose and between
 the shoulders bearing elevated
 lines ; posterior angles of lateral
 lobes widely rounded ; vertex
 behind the fossae bearing dis-
 tinct transverse placa ; first pul-
 villi of posterior tarsi spinose . . . *bilineatus*, Bol.
- 6.6. Median carina of pronotum pluri-
 interrupted, scarcely elevated,
 dorsum covered with shining
 tubercles and short irregular
 lines ; posterior process not or
 scarcely passing the apices of
 posterior femora ; wings often
 caudate *annulipes*, Karsch.
- 5.5. Posterior process of pronotum
 not reaching to the apices of
 hind femora ; wings shortened,
 hardly reaching to the ab-
 dominal apex.

